2012
Montana Department of Revenue

2D Barcode Standards

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Montana State Seal

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1. Overview

This document covers only the 2-D barcode on substitute form MW-3.

The 2-D barcode is intended to represent the information on the paper MW-3 form.

This version will comply with the computerized industry standards. If a software developer does not support 2-D barcodes, the area reserved for the barcode should be left blank.

A general rule that can be used to determine if a print is capable of producing a 2-D barcode is if the printer can reproduce a graphic such as an agency seal (on previous page) or business logo, then the printer should be capable of producing a 2-D barcode that can be scanned.

2. General Standards

- The barcode will be a 2-D barcode in the PDF-417 format. The PDF 417 has error detection and correction capabilities. The error correction level should be set to level 4.
- All fields within the barcode are followed by a carriage return <cr>
- All fields are required, although a field can be left empty leaving just the field terminating <cr>. Exception: Federal ID field may not be left empty
- All alpha characters should be in uppercase.
- Do not zero fill or fill with spaces if a field is to be left blank. If there is no data, a field should be left empty followed by a terminating <cr>
- EOD (End of Data): the final field in the data stream should be the characters *EOD* followed by a <cr>
- Stretching or scaling the barcode changes its integrity and reduces the readability of the barcode; it should not be done.
- Handwritten changes or modifications after printing the form and barcode is discouraged.
- Do not replicate the red text or box. This is 2D barcode reference numbers & indication where the 2D barcode should be placed on the form.

3. Approval Procedures

- The format of the Form and the 2-D barcode data will be approved separately and simultaneously, if possible to expedite the approval process. We will indicate exactly what is being approved.
- Test documents required are 1 full field sample & 5 variable data samples.
- 1-D barcodes are still required as shown on the form & explained in the Forms Specification document.
  - o The 2D layer on the form document will show a 1D barcode that will indicate to our software that a 2D barcode is expected.
- All vendors must obtain 2D barcode approval from the Montana Dept of Revenue if they develop
  - o Scannable tax forms containing 2D barcodes using its own software
  - o Tax software that generates 2D barcodes to be used with in scannable forms developed by another company.

4. Duration of Approvals

- Approvals are valid for only one tax year (January through December)
- In general, each new filing season requires new approval, even if the official form does not change.
- Any questions about the bar-coded substitute form should be emailed to DORe-Services@mt.gov or contact Mary at 406-444-7372

5. Barcode Specifications

- The barcode is defined as a 2-D barcode in the PDF-417 format. The PDF 417 has error detection and correction capabilities. The error correction level should be set to level 4
- The Y/X ration will be 2.
- 2 inches high by 4 inches wide.
- The Mode setting will be ASCII to cover alphanumeric characters
- All fields within the barcode will use the carriage return <cr> as a field delimiter.
- All fields are required. If no data is provided, the barcode data for that filed will be blank followed by the <cr> delimiter. Exception: Mandatory data fields e.g. FEIN may not be left empty.
- EOD (End of Data): the final field in the data stream should be the characters *EOD* followed by a <cr>.
- Stretching or scaling the barcode changes its integrity and reduces the readability of the barcode; it should **not** be done.

6. Rules

- Money fields must:
  - o Contain only numbers
  - o No punctuation
  - o Allow a negative sign in dollar amount fields. No other signs are allowed.
  - o Include both dollars and cents with the decimal point assumed (example: $59.6 = 5960)
  - o Do not round to the nearest dollar (example: $5500.99 = 550099)

7. Field Types

Field Type	Data Limitations	Print Format	2-D Barcode Format
Text	- All printable characters allowed - No leading or trailing blanks		
Amount	- Money fields - Only characters 0-9 allowed - Right justified (only valid in print format), - no leading zeros	999999999 99	99999999999
Numeric	Only characters 0-9 allowed		
Checkbox (CB)	Mark field with an X if statement is true.	Capital X = yes Blank = no	0 = no 1 = yes
Federal ID	- Only 0-9 characters allowed - Must contain exactly nine characters - May not be blank	99 9999999	999999999
Account Id	- Must contain exactly 13 characters - First 10 characters are always numeric & last 3 are always alpha "WTH"	9999999 999 WTH	9999999999WTH
Dates	- Format as MMDDYYYY - Must be a valid date	99999999	99999999

8. MW-3 Barcode Layout

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Field #	Description	Field type	Field Length	Field Notes
	Header Version Number (required)	Text	2	Version of general 2-D specs used to create barcode. This field is static. Currently, the text "T1"
	Developer Code (required)	N	4	Vendor's NACTP ID.
	Form & barcode Id (required)	A/N	6	BR0101
1	Tax Year (required)	N	4	2012
2	Account Id	A/N	13	
3	FEIN (required)	N	9	
4	Amended	CB	1	
5	Business Ceased/Close Account	CB	1	
6	Number of W2's filed	N	6	
7	Paper filed W-2's	CB	1	
8	Electronic Filed W-2's	CB	1	
9	Number of 1099's filed	N	6	
10	Paper filed 1099's	CB	1	
11	Electronic Filed 1099's	CB	1	
12	Total MT wages paid	N	15	
13	Total MT tax withheld	N	15	
14	Total MT withholding tax paid	N	15	
15	Difference	N	15	
16	Discuss with tax preparer – yes	CB	1	
17	Discuss with tax preparer – no	CB	1	
18	Preparer's name & phone number	CB	1	Print name & number on form. In 2D barcode, indicate yes or no info was provided
19	Row 1, Deposit Period End date	N	8	
20	Row 1, Date Paid to MT DOR	N	8	
21	Row 1, Montana Tax Withheld	N	15	
22	Row 1, Montana Tax Paid	N	15	
23	Row 1, Difference (of Withheld & Paid)	N	15	
24	Row 2, Deposit Period End date	N	8	
25	Row 2, Date Paid to MT DOR	N	8	
26	Row 2, Montana Tax Withheld	N	15	
27	Row 2, Montana Tax Paid	N	15	
28	Row 2, Difference (of Withheld & Paid)	N	15	
29	Row 3, Deposit Period End date	N	8	
30	Row 3, Date Paid to MT DOR	N	8	
31	Row 3, Montana Tax Withheld	N	15	
32	Row 3, Montana Tax Paid	N	15	
33	Row 4, Difference (of Withheld & Paid)	N	15	
34	Row 4, Deposit Period End date	N	8	
35	Row 4, Date Paid to MT DOR	N	8	
36	Row 4, Montana Tax Withheld	N	15	
37	Row 4, Montana Tax Paid	N	15	

38	Row 4, Difference (of Withheld & Paid)	N	15	
39	Row 5, Deposit Period End date	N	8	
40	Row 5, Date Paid to MT DOR	N	8	
41	Row 5, Montana Tax Withheld	N	15	
42	Row 5, Montana Tax Paid	N	15	
43	Row 5, Difference (of Withheld & Paid)	N	15	
44	Row 6, Deposit Period End date	N	8	
45	Row 6, Date Paid to MT DOR	N	8	
46	Row 6, Montana Tax Withheld	N	15	
47	Row 6, Montana Tax Paid	N	15	
48	Row 6, Difference (of Withheld & Paid)	N	15	
49	Row 7, Deposit Period End date	N	8	
50	Row 7, Date Paid to MT DOR	N	8	
51	Row 7, Montana Tax Withheld	N	15	
52	Row 7, Montana Tax Paid	N	15	
53	Row 7, Difference (of Withheld & Paid)	N	15	
54	Row 8, Deposit Period End date	N	8	
55	Row 8, Date Paid to MT DOR	N	8	
56	Row 8, Montana Tax Withheld	N	15	
57	Row 8, Montana Tax Paid	N	15	
58	Row 8, Difference (of Withheld & Paid)	N	15	
59	Row 9, Deposit Period End date	N	8	
60	Row 9, Date Paid to MT DOR	N	8	
61	Row 9, Montana Tax Withheld	N	15	
62	Row 9, Montana Tax Paid	N	15	
63	Row 9, Difference (of Withheld & Paid)	N	15	
64	Row 10, Deposit Period End date	N	8	
65	Row 10, Date Paid to MT DOR	N	8	
66	Row 10, Montana Tax Withheld	N	15	
67	Row 10, Montana Tax Paid	N	15	
68	Row 10, Difference (of Withheld & Paid)	N	15	
69	Row 11, Deposit Period End date	N	8	
70	Row 11, Date Paid to MT DOR	N	8	
71	Row 11, Montana Tax Withheld	N	15	
72	Row 11, Montana Tax Paid	N	15	
73	Row 11, Difference (of Withheld & Paid)	N	15	
74	Row 12, Deposit Period End date	N	8	
75	Row 12, Date Paid to MT DOR	N	8	
76	Row 12, Montana Tax Withheld	N	15	
77	Row 12, Montana Tax Paid	N	15	
78	Row 12, Difference (of Withheld & Paid)	N	15	
	Trailer		5	Always *EOD*

Page 2, 1st 2D barcode

Field #	Description	Field type	Field Length	Field Notes
	Header Version Number (required)	Text	2	Version of general 2-D specs used to create barcode. This field is static. Currently, the text "T1"
	Developer Code (required)	N	4	Vendor's NACTP ID.
	Form & barcode Id (required)	A/N	6	BR0201
79	Row 1, Deposit Period End date	N	8	
80	Row 1, Date Paid to MT DOR	N	8	
81	Row 1, Montana Tax Withheld	N	15	
82	Row 1, Montana Tax Paid	N	15	
83	Row 1, Difference (of Withheld & Paid)	N	15	
84	Row 2, Deposit Period End date	N	8	
85	Row 2, Date Paid to MT DOR	N	8	
86	Row 2, Montana Tax Withheld	N	15	
87	Row 2, Montana Tax Paid	N	15	
88	Row 2, Difference (of Withheld & Paid)	N	15	
89	Row 3, Deposit Period End date	N	8	
90	Row 3, Date Paid to MT DOR	N	8	
91	Row 3, Montana Tax Withheld	N	15	
92	Row 3, Montana Tax Paid	N	15	
93	Row 3, Difference (of Withheld & Paid)	N	15	
94	Row 4, Deposit Period End date	N	8	
95	Row 4, Date Paid to MT DOR	N	8	
96	Row 4, Montana Tax Withheld	N	15	
97	Row 4, Montana Tax Paid	N	15	
98	Row 4, Difference (of Withheld & Paid)	N	15	
99	Row 5, Deposit Period End date	N	8	
100	Row 5, Date Paid to MT DOR	N	8	
101	Row 5, Montana Tax Withheld	N	15	
102	Row 5, Montana Tax Paid	N	15	
103	Row 5, Difference (of Withheld & Paid)	N	15	
104	Row 6, Deposit Period End date	N	8	
105	Row 6, Date Paid to MT DOR	N	8	
106	Row 6, Montana Tax Withheld	N	15	
107	Row 6, Montana Tax Paid	N	15	
108	Row 6, Difference (of Withheld & Paid)	N	15	
109	Row 7, Deposit Period End date	N	8	
110	Row 7, Date Paid to MT DOR	N	8	
111	Row 7, Montana Tax Withheld	N	15	
112	Row 7, Montana Tax Paid	N	15	
113	Row 7, Difference (of Withheld & Paid)	N	15	
114	Row 8, Deposit Period End date	N	8	
115	Row 8, Date Paid to MT DOR	N	8	
116	Row 8, Montana Tax Withheld	N	15	
117	Row 8, Montana Tax Paid	N	15	

118	Row 8, Difference (of Withheld & Paid)	N	15	
119	Row 9, Deposit Period End date	N	8	
120	Row 9, Date Paid to MT DOR	N	8	
121	Row 9, Montana Tax Withheld	N	15	
122	Row 9, Montana Tax Paid	N	15	
123	Row 9, Difference (of Withheld & Paid)	N	15	
124	Row 10, Deposit Period End date	N	8	
125	Row 10, Date Paid to MT DOR	N	8	
126	Row 10, Montana Tax Withheld	N	15	
127	Row 10, Montana Tax Paid	N	15	
128	Row 10, Difference (of Withheld & Paid)	N	15	
129	Row 11, Deposit Period End date	N	8	
130	Row 11, Date Paid to MT DOR	N	8	
131	Row 11, Montana Tax Withheld	N	15	
132	Row 11, Montana Tax Paid	N	15	
133	Row 11, Difference (of Withheld & Paid)	N	15	
134	Row 12, Deposit Period End date	N	8	
135	Row 12, Date Paid to MT DOR	N	8	
136	Row 12, Montana Tax Withheld	N	15	
137	Row 12, Montana Tax Paid	N	15	
138	Row 12, Difference (of Withheld & Paid)	N	15	
	Trailer	A	5	Always *EOD*

Page 2, 2Nd 2D Barcode on page

	Header Version Number (required)	Text	2	Version of general 2-D specs used to create barcode. This field is static. Currently, the text "T1"
	Developer Code (required)	N	4	Vendor's NACTP ID.
	Form & barcode Id (required)	A/N	6	BR0202
139	Row 13, Deposit Period End date	N	8	
140	Row 13, Date Paid to MT DOR	N	8	
141	Row 13, Montana Tax Withheld	N	15	
142	Row 13, Montana Tax Paid	N	15	
143	Row 13, Difference (of Withheld & Paid)	N	15	
144	Row 14, Deposit Period End date	N	8	
145	Row 14, Date Paid to MT DOR	N	8	
146	Row 14, Montana Tax Withheld	N	15	
147	Row 14, Montana Tax Paid	N	15	
148	Row 14, Difference (of Withheld & Paid)	N	15	
149	Row 15, Deposit Period End date	N	8	
150	Row 15, Date Paid to MT DOR	N	8	
151	Row 15, Montana Tax Withheld	N	15	
152	Row 15, Montana Tax Paid	N	15	
153	Row 16, Difference (of Withheld & Paid)	N	15	
154	Row 16, Deposit Period End date	N	8	
155	Row 16, Date Paid to MT DOR	N	8	
156	Row 16, Montana Tax Withheld	N	15	

157	Row 16, Montana Tax Paid	N	15	
158	Row 16, Difference (of Withheld & Paid)	N	15	
159	Row 17, Deposit Period End date	N	8	
160	Row 17, Date Paid to MT DOR	N	8	
161	Row 17, Montana Tax Withheld	N	15	
162	Row 17, Montana Tax Paid	N	15	
163	Row 17, Difference (of Withheld & Paid)	N	15	
164	Row 18, Deposit Period End date	N	8	
165	Row 18, Date Paid to MT DOR	N	8	
166	Row 18, Montana Tax Withheld	N	15	
167	Row 18, Montana Tax Paid	N	15	
168	Row 18, Difference (of Withheld & Paid)	N	15	
169	Row 19, Deposit Period End date	N	8	
170	Row 19, Date Paid to MT DOR	N	8	
171	Row 19, Montana Tax Withheld	N	15	
172	Row 19, Montana Tax Paid	N	15	
173	Row 19, Difference (of Withheld & Paid)	N	15	
174	Row 20, Deposit Period End date	N	8	
175	Row 20, Date Paid to MT DOR	N	8	
176	Row 20, Montana Tax Withheld	N	15	
177	Row 20, Montana Tax Paid	N	15	
178	Row 20, Difference (of Withheld & Paid)	N	15	
179	Row 21, Deposit Period End date	N	8	
180	Row 21, Date Paid to MT DOR	N	8	
181	Row 21, Montana Tax Withheld	N	15	
182	Row 21, Montana Tax Paid	N	15	
183	Row 21, Difference (of Withheld & Paid)	N	15	
184	Row 22, Deposit Period End date	N	8	
185	Row 22, Date Paid to MT DOR	N	8	
186	Row 22, Montana Tax Withheld	N	15	
187	Row 22, Montana Tax Paid	N	15	
188	Row 22, Difference (of Withheld & Paid)	N	15	
189	Row 23, Deposit Period End date	N	8	
190	Row 23, Date Paid to MT DOR	N	8	
191	Row 23, Montana Tax Withheld	N	15	
192	Row 23, Montana Tax Paid	N	15	
193	Row 23, Difference (of Withheld & Paid)	N	15	
194	Row 24, Deposit Period End date	N	8	
195	Row 24, Date Paid to MT DOR	N	8	
196	Row 24, Montana Tax Withheld	N	15	
197	Row 24, Montana Tax Paid	N	15	
198	Row 24, Difference (of Withheld & Paid)	N	15	
	Trailer	A	5	Always *EOD*